

Detection of Paenibacillus larvae (American Foulbrood Disease) by the PCR and Culture in the Remains of the Hive Collected at the Bottom of the Colony

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Abstract : The American foulbrood is one of the most serious diseases that may affect brood of larvae and pupae stages. The causative organism is a gram positive bacterium *Paenibacillus larvae*. American foulbrood infected apiaries suffer from severe economic losses, resulting from significant decreases in honeybee populations and honey production. The aim of this study was to detect *Paenibacillus larvae* in the remains collected at the bottom of the hive from the suspected hives by direct PCR and culture growth. A total of 56 suspected beehive wax debris samples collected in 40 different apiaries located in the central region of Algeria. MYPGP the culture medium is used during all the identifications of the bacterium. After positive results on samples, biochemical confirmation tests (test of catalase, presence hydrolysis of casein) and microscopic (gram stain) are used in order to verify the accuracy of the initial results. The QIAamp DNA Mini Kit is used to identify the DNA of *Paenibacillus larvae*. *Paenibacillus larvae* were identified in 14 samples out of 16 by the PCR. A suspected culture-negative sample was found positive through evaluation with PCR. This research is for the bacterium *Paenibacillus larvae* in the debris of the colony is an effective method for diagnosis of the pathology of American foulbrood.

Keywords : *Paenibacillus larvae*, honeybee, PCR, microbiological method

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